

Solids of Pneumatics-which?

Note—At the Truck and Tractor meeting of the Society of Automotive Engineers held in Chicago a paper entitled "Relation of Solid and Pneumatic Tires to Motor Truck Efficiency" was read by S. V. Norton, of the B. F. Goodrich Rubber Co.

The following is the last installment of an abstract from his paper which has been pronounced by experts as the most authoritative treatment of the subject ever made. Mr. Norton is widely known as a transportation engineer, a tire expert and as the author of "Motor Trucks of America" and "The Motor Truck as an Aid to Business Profits."

Having reviewed the engineering features and the practical operating features in preceding installments of this series, let us now see what the operator faces in so far as tire service is concerned. As the nature and extent of service of the maintenance and renewal of solid tires are well known, it seems unnecessary to comment on them except to say that years of study and competition have developed this end of the business to a high degree of perfection, so that the operator can depend upon many well equipped service stations for instant attention, either in the day or night.

The manufacture of heavy duty pneumatic tires of six inch section and larger, is, however, a relatively new development, less than a third of the manufacturers of passenger car tires have started actively to make heavy duty pneumatic tires, for they realize that the job of building a tire which will stand up under the use and abuse to which it is subjected nowadays is no easy task. Moreover the task is not finished when the tire comes out of the heater. It must be sold to the dealer, who, in turn, must not only stand behind the tire, but place himself in position to give the truck operator service. This means he must install a high-pressure air-pump, repair materials and molds for vulcanizing and in most cases a service car for emergency calls as it must be remembered the tire is apt to fall away from its base and it cannot be driven home flat.

It may be said, without fear of contradiction, that the tire companies themselves are not as yet prepared to give really efficient service in all parts of the country. In fact, even in the principal cities this phase of the business has not been fully developed. In the smaller towns there are almost no air tanks or pumps to keep tires properly inflated. Pumps on trucks themselves are reported as not always dependable, sometimes requiring from 15 minutes to a half an hour to secure the desired pressure in a tire.

By far the most serious and difficult phase of giving service with heavy duty pneumatics, and that which causes the most concern to truck operators, is connected with the repair. In fact, the chief complaint in regard to pneumatic truck tires aside from their high initial cost, is that they are subject to injuries, cuts and damage generally of such a nature that they cannot be repaired except at the factory where they are made, or in a few cities at a factory branch, and often they are damaged beyond all repair. This is not only expensive, but frequently necessitates the purchase of more than one set of spares should the first set be injured while the others are being repaired. Oftentimes the principal cost of punctures or blowouts is due to the necessity of laying up trucks awaiting new tires, due to stock shortage, or sending the damaged tires to the nearest factory branch for repair. Moreover, repaired casings frequently deliver but small mileage due to the overcure of the joined portions. This danger is most difficult to overcome in the large sections due to the longer cure required to vulcanize the interior portions of the new part of the casing. No doubt this feature will ultimately be corrected.

The tread seems to give less trouble than the side walls which are more susceptible to rut wear and overloading abuse.

The movement toward the use of pneumatics should not be condemned however, for undoubtedly it will be the means of increasing the scope of usefulness of motor transportation.

The question is too new to be decided theoretically or from such meager records as are now available.

The field of each type of tire may be separated into three classifications within which the operator may reasonably place his installation, and select his equipment accordingly. These may be called: (1) the imperative field; (2) the economic field; and (3) the optional field.

The factors that would bring a truck within the "imperative" field for solid tires are: reasonably hard roads surface, dependability of delivery, regularity of delivery, and heavy loads with frequent overloads.

If delivery must positively reach its destination without fail at time promised; if regular delivery is a more important factor than either speed or cost of delivery, or if it carries over loads beyond the rated capacity of the tires, solid tires should be used.

Similarly, the factors that would bring a truck within the "imperative" field for pneumatics are some combination of the following: Traction on any kind of road surface, or off the road, with cost subordinated; speed with cost subordinated or protection of merchandise from road shocks.

The factors that would bring a truck within the "economic" field for solid tires are: Short hauls in cities where speed is relatively unimportant; heavy loads with tendency to overloads; traffic congestion which reduces average speed; loading and unloading delays and need for low delivery cost.

Similarly those that would bring the truck within the "economic" field for pneumatic tires are: Road conditions which will not prematurely destroy the tires; long hauls; high average speed; relatively light loads with no overloads; tire service conditions good and low cost subordinated to quick service.

In analyzing the "economic" field the operator must decide first whether he can avail himself of the potential speed pneumatic tires would give him. This, of course, includes the possible delays he may encounter due to tire trouble as a result of bad road conditions and those he will find provided the tire service conditions in his locality cannot be depended upon. Next he must be sure that the features of his service provided by pneumatics will justify their extra cost.

The distinction between "economic" and "optional" fields is difficult to make. In fact, the decision as to which is the better equipment may be purely a matter of personal opinion, without strong factors on either side. Hence, I shall not attempt to define them. One of the most interesting significant developments which I have noticed in studying this subject, however, is the growing tendency among truck drivers to use pneumatic tires on front wheels where the need for protection from vibration is the greatest, and solids on the rear, to carry the burden of the load. This practice has much to commend it, and should steadily grow in favor.

In concluding, I should like to urge that designing engineers study to develop such cushioning effects as may be possible through other means than tires, such as, cushion wheels, improved springs, shock absorbers, etc. While I realize that no mechanical device is so resilient as air, we have a long way to go before we overcome the difficulties of making it serve as acceptably in puncture-proof and fool-proof rubber tires, although the industry is making notable progress in this direction.

A careful study of the points brought out in the foregoing should be of material value to the truck owner in deciding which type of tire to use. If he closely considered all the factors involved, as mentioned herein, he will undoubtedly be able to choose the tire best suited to his needs.

STATE BOARD OF HEALTH REPORT

It is interesting to note the falling off of communicable diseases for the month of June, reports the State Board of Health. This is particularly true of the incidence of smallpox. Since the first of the year, the number of cases has gradually increased until May when 55 cases were reported from 5 counties. During June, the number of cases dropped to 15.

In Gila County there were 16 cases of scarlet fever, 2 cases in Graham and 3 in Yavapai.

Of the other communicable diseases, the number of cases were negligible. Maricopa and Pinal counties reported one case each of Infantile Paralysis. Cochise reported a case of Malta fever, a disease contracted from goats.

STATISTICS SHOW GROWTH

An examination of the births and deaths reported to the Arizona State Board of Health at different periods is of considerable interest. The first number of the quarterly Bulletin of the Health Department issued Nov. 1, 1907, shows the Births to have been at the annual rate of 1,212 and the deaths, 1,388. For the year ending June 30, 1910, there were 3,054 deaths. The deaths for 1919 numbered 5,040. In 1918, the influenza epidemic brought the death toll to 6,623. The births for 1918 were 6,257; for 1919, 6,591.

BIRTH RECORD ADVANCES

Arizona's birth record shows a continuous and gratifying increase. There were reported for the first five months of 1920:

	Boys	Girls	Total
January	338	284	622
February	268	280	548
March	340	309	649
April	366	305	671
May	395	339	734

This indicates a total of births far in excess of those reported for 1919.

The record for the different counties is interesting.

County	Jan.	Feb.	Mar.	Apr.	May
Apache	16	12	23	9	14
Cochise	95	62	84	117	90
Cocconino	12	17	21	19	22
Gila	77	52	48	54	68
Graham	23	27	40	24	25
Greenlee	39	45	49	52	51
Maricopa	187	152	196	205	257
Mohave	6	10	3	2	2
Navajo	19	25	13	24	19
Pima	53	44	43	63	62
Pinal	11	25	35	23	34
Santa Cruz	19	24	15	16	26
Yavapai	39	33	51	36	46
Yuma	26	20	28	27	18

622 548 649 681 734

Of the 3,234 babies reported, 26 were illegitimate.

Although Arizona has no specific law insisting that the eyes of babies shall be protected against the possibility of blindness from ophthalmia neonatorum, yet this protection was accorded in 2,843 births. It was not given in 381 cases. It is worthy of note that 371 births were attended by midwives.

More than 25 per cent of the babies, 893, were the first born of their families. Nearly half, 1,563, were in families of from 2 to 5.

About 16 per cent, 556, were in families of from 6 to 10.

There were 112 born in families of 11 and over.

Forming a Child's Ideas.

Priceless opportunities belong to a mother to give to the baby, with his whole life before him, the true foundations of character and chances of future happiness and greatness. So the first thing a wise woman does is to reason the matter out, deciding on a method of action which can be pursued with as little deviation as possible. Preparation is needed, for just as love does not bestow a mysterious instinct as to the proper physical treatment of a baby, so affection alone will not prove a sufficient guide or teacher in the matter of character training. One has to cultivate the power of restraining impulse, of infinite patience and infinite self-control and a firm grasp of those principles which underlie the formation of character. By possessing these powers herself, the mother is able to direct a child's conduct and to suggest motives to him at a time when his impulses are natural and his ideas yet unformed, when he will learn literally unconsciously.

Early Irish History.

In the earliest time of which there is any record, Ireland was inhabited by tribes of the great Celtic family, to which belonged the ancient Britons of the larger island, and the Gauls of the country now known as France. Each tribe had its chief, and after a time a supreme monarch came to the front. One of the most famous of these was Brian, who overthrew the invading Danes in the battle of Clontarf, fought in the year 1014 near Dublin. He was slain in his tent at the close of the fight. After his death the supreme monarchy was often in complete abeyance, misrule and anarchy widely prevailed and the ancient form of society was largely broken up. It is said that Roderick O'Connor, son of Turlogh, was the last of the monarchs of Celtic Ireland. From that time the influence of Anglo-Normans increased.

MINER WANT ADVS. BRING RESULTS

MAKES THE SAPPHIRE BLUSH

Radium Treatment Turns the Cheaper Stones to Rubies Which Command the Highest Prices.

Modern science has not brought us very much nearer the magic stone of the old philosophers, but it has enabled later experts to play some surprising tricks with the existing materials of the jeweler and lapidary. The old alchemists set out to discover the philosopher's stone, and achieved gunpowder and other adjuncts to civilization as the accidental by-product of their original inquiry. Their less credulous descendants reverse the process; the invention is made first and its application to magic is discovered afterward.

The existence of the electric furnace makes it possible to create diamonds that are the veritable stone, and to fuse chippings and fragments of ruby into one complete jewel. Now arrives a report that with the aid of radium successful transformations have been made in the appearance, if not in the nature, of certain precious stones. A sapphire, it is said, has been turned into a glorious ruby by long exposure to the effect of radium. Chemically considered, this is not very surprising, for the two stones are both examples of corundum, and the mysterious accident of color is the principal difference between them. If a sapphire can be made to blush hard enough for its mistake in not being a ruby, presumably it could blush itself into a most accomplished example of the more valuable stone.

TAKE IT EASY IN THEATER

Japanese Customs That Seem Odd to Those Accustomed to the Formalities of the West.

Japan must be a happy land for theatergoers, because in that land seats are not paid for—in fact there are no seats. The Japanese much prefer to squat, feeling, no doubt, much more at home in this comfortable attitude. Seats, however, are usually brought for the use of any foreigners who may be present. There are no hard and fast laws of convention. The Japanese playgoer may do as he pleases; he may eat, drink, smoke and criticize to his heart's content. Conversations are carried on, and if they merit it, the actors are met by a storm of criticism and chaff. When a man enters the auditorium he removes his boots, and if the weather is hot, any clothing that appears to him to be superfluous. The naive frankness of the actors' prompter is rather delightful, for if an actor forgets his lines the prompter comes on the stage and, quite openly, points out to the actor where he is wrong. A boy is kept for the express purpose of walking on the stage and wiping the perspiration off the actors' faces; this duty he carries out without disturbing the even tenor of the play.

Beetle Cultivator.

Ants are not the only insects that practice the cultivation of mushrooms, although for a long time it was thought that they were the only creatures of a lower order than man that possessed the intelligence to follow such an agricultural pursuit. Bouvier, the entomologist, had found that a certain wood-boring beetle, known as the bryotrychide, is as familiar with mushroom cultivation as is the species of ant of which so much has been written. Professor Bouvier discovered that the beetles in question bore holes in wood and half fill them with a prepared fungus which makes an ideal mushroom bed. The garden is carefully spawned and in course of time the mushrooms appear. In this way the beetle provides itself with a food sufficiently tender for its feeble jaws.

Shall We Discard Hyphens?

In the struggle for the conservation of energy and material we are urged to cut out the hyphens from our books and writings, says the Chicago Journal. Their use causes us to waste an enormous amount of time, ink and physical force. Some nations build up compound words without any hyphen to break them, but the English find one necessary for a simple word of five letters, like "to-day." It may be roughly estimated that each of the 2,000,000,000 people who write English write "today," "tomorrow" or "tonight" three times a day. Half an ounce of force is required to make a hyphen with a pen or a pencil, so this superfluous symbol entails a total waste of 18,500,000 pounds daily, or enough to draw a passenger train round the world.

Humming Bird's Nest.

Burroughs, in his charming little book, "Wake Robin," says it is an event in one's life to find a humming bird's nest. The event happened to me without any effort on my part. Looking up from a seat in the grove, I saw the ruby-throated drop down on its nest, like a shining emerald from the clouds; it did not pause upon the edge of the nest, but dropped immediately upon it. The nest was situated upon an oak twig, and was about the size of a black-walnut, and from where I sat it looked more like an excrescence than a nest. It was situated in the fork of two twigs, and firmly glued at the base to the lower, but was not fastened to the upper twig.—Mary Treat in "Home Studies in Nature."

One Thing at a Time, Boys.

When a fellow is trying to mobilize enough courage to kiss a girl he isn't able to think of germs.—Toledo Blade.

NOTICE OF GENERAL PRIMARY ELECTION

Office of the Board of Supervisors of Mohave County, Arizona, Kingman, Arizona, July 15th, 1920.

A Primary Election is hereby called in the several precincts of Mohave County under the provisions of the law relating to Primary Elections on the 7th day of September, 1920, for the purpose of voting for candidates for the several parties to be nominated for the following offices:

FEDERAL OFFICERS:
1 United States Senator
1 Representative in Congress
3 Presidential Electors.

STATE OFFICERS:
1 Judge of the Supreme Court
1 Governor
1 Secretary of State
1 Auditor
1 Treasurer
1 Attorney General
1 Superintendent of Public Instruction
1 Mine Inspector
1 Corporation Commissioner
2 Tax Commissioners
1 State Senator
1 Member of the House of Representatives.

COUNTY OFFICERS:
1 Sheriff
2 Members of the Board of Supervisors.

1 Treasurer
1 Recorder
1 County Attorney
1 Assessor
1 School Superintendent

PRECINCT OFFICERS:

Justices of the Peace, the number as set forth in Para. 381, Chapter VIII, Title VI, Revised Statutes of Arizona 1913, Civil Code.

Constables, the number as set forth in Para. 2505, Chapter IV, Title X, Revised Statutes of Arizona, 1913 Civil Code.

County Precinct Committeemen, the number as set forth in Para. 3044, Chapter XII, Title XII, Revised Statutes of Arizona, 1913 Civil Code.

In witness whereof, I have hereunto set my hand and affixed my official seal.

Done at Kingman, the County Seat, this 15th day of July, 1920.

J. S. WITHERS,
Clerk Board of Supervisors,
Mohave County, Arizona.

1st insertion July 24.
Last insertion Aug. 7.

How to Utilize Wood Waste.

The utilization of wood waste is one way recommended to cut down the high cost of living. Here are some articles made from sawdust and shingle waste which the New York College of Forestry is exhibiting in its efforts to show how the waste of the sawmill can be utilized to cheapen the cost of living: "Silk" socks, sausage casings, phonograph records, paper milk bottles and tanbark shingles. The "silk" looks like silk and feels like silk, but is much cheaper than silk. The sausage casings are made by treating the wood with chemicals that turn it into viscous, and rolling this into thin films.

Mining is taking on new activity in Yuma county.

With the price of silver considered encouraging, the mining of silver is taking on fresh impetus and in the district north of Yuma various properties are being developed by their holders.

REPORT ON FREIGHT CAR SITUATION

The present freight car situation on the railroads of the United States is revealed in a report just issued by K. M. Nicles, Chairman of the San Francisco Committee on Car Service. The interest and co-operation shown by shippers in the Bay District is appreciated by members of the committee and attention is called to the necessity of keeping up the good work.

Says Nicles: "In the eastern part of the country, the movement of coal shows improvement, while the movement of steel and steel mill products shows a decrease amounting to a congestion at mills in some sections, the scarcity of open top or coal carrying cars together with the increased demand, being responsible for the situation. In the wheat growing sections the box car situation is very serious. Large quantities of last year's crop of wheat and other grains awaiting shipment fill the elevators and storage places, and the new crop now about to be harvested shows in some places a large increase.

"In the Northwest-Minnesota, the Dakotas and Eastern Montana, where usually at this season are stored 15,000 to 18,000 box cars ready to move the crops, there is actually a car shortage with elevators full of old grain. Minneapolis and St. Paul, are particularly in bad shape, unable to get cars enough to keep elevators normally free.

"The Pacific Coast, and especially California, so dependent upon the steady movement of box cars from the East to handle its product, will in the near future find the supply being curtailed to a dangerous degree, and to make the burden as light as possible, California shippers are again urged to take every possible means to conserve box cars. An immediate survey should be made by every business industry to see where and how cars may be saved by co-operation with one another and the carriers. Several well-known methods are again suggested—double load, pool shipments, load to maximum capacity, load and unload promptly, keep in close touch with carriers' agents, report anticipated release of cars, order only when ready to load and only cars that are required from day to day, surrender bills of lading in advance of arrival of cars when possible and utilize drays and trucks for crosstown and nearby movement.

"All these concern the shipper and are offered in a spirit of helpful co-operation and efficiency. Make one car do the work of two, and do it now."

Mining is taking on new activity in Yuma county. With the price of silver considered encouraging, the mining of silver is taking on fresh impetus and in the district north of Yuma various properties are being developed by their holders.

DRAFTING, MAPS, UNDERGROUND SURVEYS

MOHAVE ASSAY & ENGINEERING OFFICE

New Modern Plant
Phone Blue 127

One Block East
Arizona Central Bank

Reading advertisements has helped to make this a united country

Jim Hawkins preps his feet on the rose festooned porch railing in an Oregon suburb and reads the same motor car advertisement that Cousin Peter is studying as he rides home from work in the New York subway.

In Arizona you can buy the same tooth paste and tobacco that are used by the folks in Maine.

California fruit growers advertise their oranges and lemons to the people of the East. New Hampshire factories make ice cream freezers for Texas households.

There can be no diversion in a country so bound together by taste, habit and custom. You can meet up with anybody in the United States and quickly get on a conversational footing because you both read the same advertisements.

Advertising is the guide to what's good to buy...Advertisements give you the latest news from the front of business progress.

Reading advertisements enables you to get more for your money because they tell you where, what and when to buy. And it is a well-known fact that advertised goods are more reliable and better value than the unadvertised kinds.

ADVERTISING COSTS

The following interesting data was culled from a bulletin issued by the Research Department of the International Magazine Company. The appended table shows the advertising expenditures expressed as a percentage of sales:

Arrow Collars	3.5
Cadillac Automobiles	1.
Cloth-craft Clothes	1.5
Colgate's Preparations	2.
Fatima Cigarettes	5.
Ivory Soap	3.
Kodaks	3.
Old Dutch Cleanser	10.
Packard Automobiles	1.1
Phonographs	5.
Sears, Roebuck & Co.	10.
Velvet Tobacco	6.
Welch's Grape Juice	10.
Wrigley's	14.

To these we add:

Campbell's Soups 2.4 |

Campbell's Beans 2.3 |

The old, time worn conundrum "Who pays for the advertising?" is still propounded by some occasional moss covered or mildewed mind. All

sanitary, dust proof mentalities have long since stopped bothering.

The Editor, being an advertising fan, prefers the answer of the enthusiastic ad salesman: "Nobody pays for it."

Nobody pays for the labor saving machine that reduces factory overhead and increases production—it pays for itself.

Nobody pays for the motor truck installation that decreases delivery charges by increased efficiency—it pays for itself.

Nobody pays for the advertising that cuts down selling costs and puts business on a quantity basis—it pays for itself.

Funny, Now, Isn't It?

"Heard a good story today."

"What was it?"

"Oh, it's too bad to repeat."

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